DECEMBER 1945

SOIL CONSERVATION

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SOIL CONSERVATION

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WELLINGTON BRINK EDITOR

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Front Cover: Christmas trees are a profitable crop on this farm in Columbia County, Pa. See page 144 for further comment.

SOIL CONSERVATION *is issued monthly by* SOIL CONSERVATION SERVICE of the United States Department of Agriculture, Washington, D. C. The matter contained herein is published by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business, with the approval of the Director of the Budget. SOIL CONSERVATION seeks to supply to workers of the Department of Agriculture engaged in soil conservation activities, information of special help to them in the performance of their duties. Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., 10 cents a copy, or by subscription at the rate of $1.00 per year, domestic; $1.50 per year, foreign. Postage stamps will not be accepted in payment.

There's But One Way to Do the Job

By Hugh Bennett

Chief, Soil Conservation Service

I THINK it advisable at this time to have a look at our National Program of Soil Conservation. In this article we will briefly examine the meaning and purpose of soil conservation, and explain how it is being applied to the land.

Why Do We Need Soil Conservation? Throughout the world there is pressing need for better adjustment of agriculture to the physical environment—better use of land and water—not only to gain a sorely-needed increase in per-acre production but also to maintain a healthy agricultural economy—which could be disastrously undermined through continuing impairment of our limited supply of productive land.

This adjustment is vital, moreover, if we are to maintain in efficient production the most widely distributed and greatest possible area of productive land as a safeguard against physical difficulties and excessive costs in the distribution of agricultural commodities. This is especially true of those regions of dense population and inadequate transportation facilities — where so often not enough productive land is available to produce needed food.

And most imperative of all reasons: These necessary adjustments must be made if we are to maintain our ability to produce in any adequate way at all. Such essential changes call for the elimination of land-use practices haphazardly—and wastefully—applied to the land, and the widespread adoption, in their place, of various conservation practices scientifically fitted to the needs and physical characteristics of the land, the climate, and the type of farming.

These practices, applied in this way, will at once protect the land and increase its productivity by conserving the soil itself, its available elements of fertility and all that man and nature put into the soil, together with a valuable portion of the rainfall that would otherwise be lost as runoff. This is of primary importance because there is no other way by which the agricultural plant of the United States—or of the world—can be kept in a safe and permanently healthful condition necessary to support a permanent agriculture. And further, it is vitally necessary because it is the only way to get from the land anything like the sustained yields necessary to feed the world.

A New Agricultural Technique. Soil conservation as practiced by trained soil conservationists is a technique in land use and protection that was never previously employed in any general way anywhere. It is not only the cheapest[1] and most effective way of protecting farm land from destructive erosion, it is the only practical way to keep cultivated and grazing land permanently productive. Other methods, such as the old single-practice method of terracing, have failed to the extent of permitting millions of acres to be ruined for any further cultivation.[2]

Until this new system came on the scene, in 1933, in the form of the program of the Soil Conservation Service, our farm lands in the United States were being impoverished at a rapidly increasing pace. The extent of damage by erosion during the 40-year period from about 1890 to 1930 probably exceeded all previous damage to the farmlands of the country. But now, finally, with the aid of this new technique we are definitely turning the tide; we are winning the fight against the greatest enemy to productive land—uncontrolled soil erosion.

When we started the program, I scarcely expected to live long enough to witness the profound agricultural revolution that is now spreading throughout our country. I look upon it as the greatest agricultural achievement of all time, for without productive land there can be no adequately productive agriculture. Even now a third of the people of the world are hungry most of the time, and still greater numbers have inadequate diets.

National Program of Soil Conservation in the United States. Twelve years ago (September 19, 1933) the first comprehensive, scientific action effort in the world to achieve conservation of soil and water resources on a nation-wide scale was undertaken by the United States when the program of the Soil Conservation Service—then the Soil Erosion Service—got under way. From the beginning, one cardinal principle dominated and guided this program. Some called the principle idealistic and impracticable; others failed to grasp its significance; but farmers, after a brief period of convincing demonstration, very generally accepted it enthusiastically.

That basic, guiding principle was at the outset and is today as follows: *Effective prevention and control of soil erosion and adequate conservation of rainfall in a field, on a farm or ranch, over a watershed, or on any other unit or parcel of land, requires the use and treatment of all the various kinds of land comprising such areas in accordance with the individual needs and adaptabilities (or capabilities) of each different piece of land having any important extent.*

Like any precise statement of a rule, however, this principle requires some qualification.

First, the use and treatment of a given area of land must be determined not only by its physical characteristics, but also, whenever possible, by such considerations as available facilities—implements, power, labor, financial means—as well as by the preference of the farmer, his ability to learn, his willingness to try new methods. In other words, the treatment must fit not only the needs and capacities of the land but the needs, adaptability, and preference of the farmer himself.

The second qualification of the general principle is that each distinct parcel of land to be treated must be considered in any pertinent physical relation it may have to any adjacent or neighboring tract, or to the entire farm, ranch, or watershed. Wherever possible, the use and treatment of one area should provide as much protection as may be practicable for adjoining or nearby areas. For example, the management of lands on higher elevations should take into consideration their relation to downslope lands. Outlets for surface runoff always should be located with proper regard to the effect of discharging water and water-transported soil material—sand, gravel, rocks, infertile material from contributory gullies—on adjoining lands, highways, or other areas susceptible to damage. Such water can do much damage along its course, as by cutting out gullies; or, it can be beneficially disposed of by safe discharge over pastures needing extra water.

To carry out such a completely coordinated soil and water conservation program on a nation-wide basis requires a great deal of basic information for the most efficient blueprinting (planning) of each farm for effective application of protective practices to the land. There are hundreds of different soils occupying varied slopes and subject to different intensities of rainfall and varying temperature. These numerous varieties of land, oc-

[1] The cost (as of Dec. 31, 1944) of doing the complete soil conservation job, including overhead, surveys, farm planning, and everything else, on 107,000 farms, comprising 30 million acres, in soil conservation districts, and the preparation and partial application of 149,000 additional farm plans, covering 41 million acres, plus the furnishing of certain machinery, planting stock, and seeds not obtainable in commercial nurseries, has amounted to $1.28 per acre.

[2] Terraces properly constructed and maintained have helped where used alone on adaptable land—land of moderate slope and soil of low erodibility; but they have often harmed the land where improperly used. Technical guidance is absolutely essential to the use of terracing—as well as various other conservation measures—whether used alone or in combination with other measures.

curring under a wide range of climatic conditions, are adapted to a variety of plants, requiring different cultural practices. From place to place—even on the same farm—these varied land conditions and different uses and treatments result in varying susceptibilities to erosion and losses of rainfall. And both active erosion and erosion hazards call for special conservation provisions.

It is probably safe to say that no two parcels of land are identical. Accordingly, each field—even each important part of a field, pasture, or woodlot—requires its own particular conservation treatment. Our conservation specialists have found that in some localities each farm, each ranch, is a special problem within itself—calling for a special job due primarily to the physical environment. Hence, a special plan is made—must be made—for every farm of the nation.

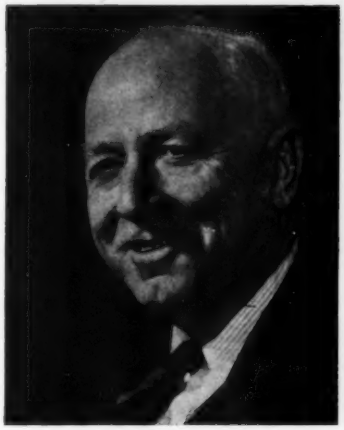
Tools of Soil Conservation. *Since soil conservation is the proper use and care of land, so that it will produce the greatest amounts of the products most needed, while, at the same time, protecting the land from loss of productivity, all measures that help keep land in condition favorable to sustained production are, therefore, tools of conservation. Terraces, contouring, organic matter, grass, legumes, shrubs, trees, crop rotations, fertilizer, drainage* where the land is too wet, *and irrigation* where it is too dry—*all of these and whatever else is needed are conservation tools that are utterly indispensible to getting the job of soil conservation properly done.* These tools are used singly where the land is easy to stabilize, and they are used in combination, one supplementing another, where the conservation needs are more complex.

In other words, soil conservation includes any and all measures that will in any way increase the productivity of the land or make the land keep on producing satisfactorily.

Some of the Land Troubles and Deficiencies That Soil Conservation Helps Prevent are:

1. Topsoil washing or blowing away;
2. Land torn to pieces by gullies;
3. Covering good land with infertile erosion debris;
4. Exhaustion of plant food in the soil by overcropping and leaching;
5. Accumulation of toxic salts;
6. Water-logging of the land;
7. Improper irrigation;
8. Burning of organic soils;
9. Excessive burning of grazing areas;
10. Improper cultivation;
11. Single-crop farming.

FIVE MAJOR BENEFITS



Hugh Bennett

WHERE it has been practiced, soil conservation farming has resulted in at least a 20-percent increase in production per acre, as an average.

It has provided a practical guide to greater crop diversification and has, as a matter of record, resulted in greater diversification.

It has meant savings to the farmer in seed, fertilizer, labor and power, and increased income.

It has accounted for a high degree of land protection, even under the pressure of intensified wartime production.

It has provided the farmer and ranchman with a practical, physical guide for shifts in the type or intensity of production that may become wise in the years ahead in order to meet possible changes in the price and demand for farm commodities.

—HUGH BENNETT.

Some of the Things That Soil Conservation Does are:

1. Holds soil and its contents of plant nutrients in fields, pastures, and woodlands;
2. Maintains or increases the supply of beneficial organic matter and organisms in the soil;
3. Keeps land productive;
4. Stores rainfall in the soil for crop use;
5. Increases diversification of crops;
6. Increases per-acre yields;
7. Makes cultivation easier and more efficient;
8. Reduces cost of operation and maintenance of farm machinery;
9. Increases farm income;
10. Reduces waste of rainfall and helps control floods;
11. Reduces the filling of stream channels, ditches, and reservoirs with the debris of erosion;
12. Reduces stream polution;

13. Improves conditions for wildlife and fish;
14. Puts all land into productive use according to adaptability;
15. Develops habits of people working together on common problems;
16. Brings people to love the land and develops appreciation of rural life.

How the Job is Done. There are many things that can be done; some of them are as follows:

1. Use suitable erosion control practices and structures to stop soil washing and blowing;
2. Hold the rain that falls on the land for use of crops, trees, grass, livestock, or other purposes;
3. Use manure, fertilizer, and lime where needed, in the right amounts and at the right time;
4. Use suitable tillage, mulching, and cropping practices to protect the land and save rainfall;
5. Drain over-wet or water-logged fields;
6. Plant grass, shrubs, trees, or legumes on land too steep, shallow, or erodible to plow, also on land too poor for growing field crops;
7. Flood fields where toxic salts ("alkali") have accumulated in excessive amount, to leach out the salts;
8. Protect organic soils (peat land) from fire by flooding or by raising the water table;
9. Open up suitable new lands, where needed, under conservation methods, to increase cropland;
10. Increase supplementary feed crops on grazing enterprises to help prevent overgrazing.
11. Support conservation work with continuing program of research aimed at quickest possible solution of problems arising in connection with field work.

These and other sound farming and ranching practices that protect the land and increase production efficiency are, as previously pointed out, the tools of soil conservation.

Where the slope of fields is steeper than 8, 10, or 12 percent, or where depth to rock is less than a foot and to impervious clay less than 3 inches, the conservationist knows that the land is hardly ever safe for regular plowing. Grass, lugumes, trees are better crops for land of this kind because they hold the soil in place. In regions of heavy rainfall, terraces to control runoff are built more sturdily than in areas of gentle rains. If yields drop off, if the forage of pastures becomes scant, the conservationist uses manure, lime, soil-building legumes, and appropriate mineral or other fertilizers to improve the productivity. He plants raw gullies to grass, trees, or vines; or, if these will not grow well, he may use small dams or other mechanical measures to stop soil washing. Critical spots in fields he safeguards with kudzu or other effective soil-building crops that better fit the situation. Wet spots call for tile drain or open ditches, ac-

A FEW MILESTONES

By July 1945, 45 states had passed district laws, and 1,328 districts had been set up. They cover parts or all of 1,771 counties and include 734 million acres and 3,404,000 farms.

By the end of 1944 soil conservation districts had made cooperative agreements with more than 256,000 farmers, covering 71 million acres. In each case the farmer agreed to use conservation farming on all his land. The district agreed to furnish technical aid, and in some cases machinery, seed, and other help. The Soil Conservation Service did the technical planning and helped apply the plans to the land. Various other agencies assisted in other ways. Work has been completed on nearly 30 million acres of this land. Counting demonstration projects, a total of 76 million acres has been treated.

In the one year, 1944, soil conservation practices were applied through soil conservation districts to 10,156,000 acres.

A lot of work has been done by the Soil Conservation Service *outside* of districts. Our technicians drew up plans for 9,320 widely-scattered demonstration farms, in cooperation with the Extension Service. They also made 104,000 other plans for demonstration areas and CCC camp areas and for erosion control on highways, and started a conservation program on military camp areas that led to the protection of about 300 sites, and so on.

Recently the Soil Conservation Service made a state-by-state survey to see how much conservation work remains to be done to control erosion and conserve rainfall. It shows that, in spite of what has already been done, a vast job still lies ahead.

We can get along from now on with the good land we have left, *but we can't keep our present standard of living if we lose much more.* We now have around 460 million acres of good cropland in the United States. This includes, besides that now in crops, about 100 million acres that need clearing, drainage, irrigation or other improvements. That's all we have. And all but about 72½ million of this 460 million acres is subject to erosion if it's not protected.

So *we have no more land to lose.* Actually we need more good land for crops now. Too many farmers in some sections are working poor land that should be turned back to grass or woodland. *More waste of good land would amount to a national crime* on the part of those who are responsible—meaning ourselves.

cording to local conditions. Dry lands call for irrigation or water spreading. Acid lands need lime, while some alkaline lands will be benefited by additions of sulphur to correct alkalinity.

Who Does the Work? In order, then, to apply a complete program of conservation-farming methods to a farm—in its entirety—it is necessary to combine the techniques of all the pertinent branches of agricultural science, together with necessary engineering, hydrologic, biologic, geologic, botanical, chemical, and other skills.

A single farm may require contributions from soil and water conservationists, agronomists, hillculturists, geologists, foresters, engineers, hydrologists, wildlife specialists, chemists, and others.

The soil conservation program has developed a new science as well as a new specialty—*the science of soil conservation* and the specialty of the *soil conservationist*. The former is what the name implies and the latter is a practical technician capable of recognizing the ordinary needs of land for conservation of soil and water, and who also has the ability to apply skillfully, scientifically, the various conservation techniques, singly or in combination, as needed.

There still will be needed, moreover, for efficient forward movement of the present national action program of soil and water conservation, a number of well trained specialists, such as agronomists, geologists, engineers, foresters, and hydrologists. These specialists are required to help keep soil conservationists, working directly with farmers, fully abreast of the latest developments in the various technical fields, and to help train personnel required to do a good job—duly coordinated to fit the different parcels of land that make up farms and watersheds.

Take away from this national program of soil conservation any one of these techniques or technicians and you thereby weaken the conservation effort of the nation. You impair the effectiveness of the work. You retard progress. You jeopardize the chances of controlling erosion. Today, by using all the needed techniques, technicians, and specialists we are absolutely controlling erosion on a widespread scale.

Occasionally, some people who do not understand very well the requirements for achieving effective and lasting work propose that agronomists should not work on the soil conservation job because they are agronomists. Once in a while, the same kind of people will suggest that engineers should not be used because they have been trained to do strictly engineering jobs. They sometimes advance the idea that foresters should not be used because they have specialized in forestry in and out of college. If this kind of thinking should be followed—if you can't build terraces or plow on the contour because it's engineering, or plant grass because that's agronomic work, or plant trees or any other needed plant that grows on the earth because that kind of work would be forestry or something else—then there would be no practical way, no possibility of ever getting the job done.

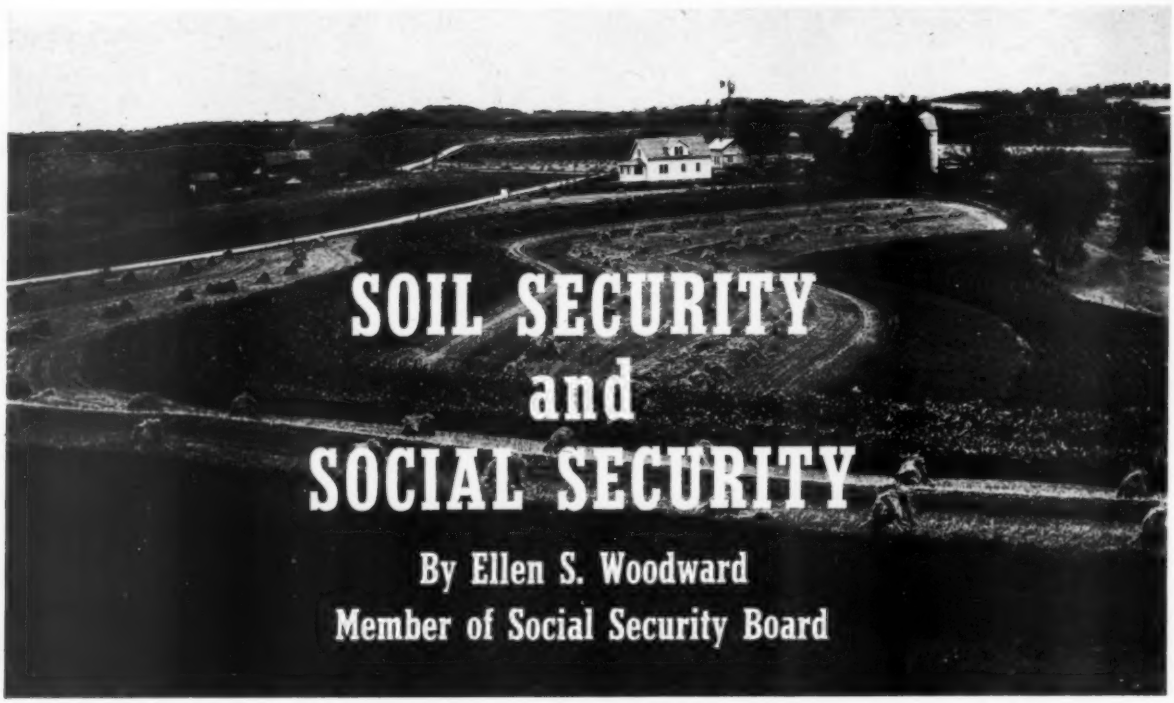
If one skill is denied, why not deny the right to use other skills, technicians, or specialists, and so on, until you arrive at a point where nothing can be done?

You wouldn't think anyone would seriously consider such senseless emasculation of a highly successful going job, when it is pretty generally understood that the nation was a hundred years late in getting an effective national program under way—but ever so often, nevertheless, it still happens.

There is one way and only one way to do an effective job of soil conservation; and that way I have briefly described in this statement. This is not just a matter of opinion; it is a physical fact that has been unmistakably proved by far-reaching research and experience on the land.

So let's keep going in the positive direction I have indicated. Conditions for work—better transportation facilities, more and better equipment, additional manpower, and so on—will steadily improve from now on. Let's speed the work along!

Next calendar year let's treat twice as much land as we have ever treated in a single year, without any impairment in the quality of our work! Let this be the goal of every person doing soil conservation work.



SOIL SECURITY and SOCIAL SECURITY

By Ellen S. Woodward
Member of Social Security Board

Smiling lands support happy, prosperous people.

MEN and women and children are not detached from the world in which they live. They are products of their environment, part of the landscape to which they belong. Even in so-called "good times," where the soil is undernourished and wasting away we find vast numbers of people who are likewise undernourished and wasting away. If we would have a Nation of strong, healthy, happy citizens—a sound, effective social order—we must build literally "from the ground up."

In my many years of dealing with the effects of economic and social blight in our land, I have had ample opportunity to observe the human damage that has been done through depletion of our soils. I have seen its mark on homes, on schools, and along highways. Ragged farms support ragged people; thin soils, thin bodies; bare fields, unpainted towns; diminishing harvests, struggling merchants. I have seen children unable to get what they should from their teachers because they were suffering from hidden hunger—the lack of essential nutritional values in the soils that grow their food.

On the other hand, I have seen smiling, well clothed, healthy, happy folk living on smiling lands—lands protected and intelligently groomed and put to the productive tasks for which they are best suited. I have noticed bounty actually increased by 20 percent or more from soil conservation measures. Soil conservation offers true security. The capital investment is insured. Homes hold together. The farm passes as a fine heritage from one generation to the next. Food, in variety and abundance, is always on the family table.

Human security comes not in a single small bundle, neatly wrapped. It comes from an alliance of forces—science, education, medicine, economics, government. Because of the close affinity between soil security and social security, I believe that it is well worth while for the readers of *Soil Conservation* to understand what the country is now trying to do to establish a bulwark against some of the greater economic and social strains.

Yes, human erosion goes hand in hand with soil erosion. During the early 1930's, the people who lived in the Dust Bowl became as pitiful as their land. As the grasses and plains withered, the people withered, too. They grew listless and weak; their farms fell into ruin, and distress spread. Finally, abandoning the land, families migrated to towns and cities; many to the Pacific Coast. They came penniless and destitute, and most of them had to ask for public relief and charity.

All this human misery, and all this waste, was a result, largely, of the inconsiderate spending of the wealth of the soil. Men's agricultural partitioning of the West ran counter to the dictates of nature, and ended inevitably in social frustration and economic loss. Even before the turn of the century, the Great Plains region had experienced severe dry spells, but such recurrent warnings went unheeded. It was only when the problem of drought, with all its fateful accompaniment of human distress, was brought forcibly to the attention of the Nation by a succession of devastating visitations in 1930, 1931, 1933, 1934 and 1936, that governmental resources were marshalled for a mass attack on the fundamental problems involved. Then, along with measures to ease the immediate distress, a long-range program of soil conservation was established to revitalize the earth.

During those years in the early 1930's when the people of the Dust Bowl were suffering from the devastation of the soil, people in all parts of the country, in cities as well as on farms, were suffering from a catastrophe as terrible as drought. For a depression had withered the economy of the land, and people were unemployed and hungry and without hope. Human erosion took place on so vast and tragic a scale, that emergency measures had to be taken to alleviate the immediate suffering. There were bread lines to feed the hungry and emergency work projects for the unemployed.

Mrs. Woodward, the author of this article, is the only woman on the powerful three-member Social Security Board. In this paper, specially prepared for *Soil Conservation* Magazine, she points out the sharp relationship between the welfare of the land and the welfare of the people who live on the land.

Scant opportunity here, where the soil has worn threadbare.

But long-range measures were also started. For just as there is constant soil erosion year in and year out when the soil is unprotected, so under our hugely complex industrial society there is constant danger of human erosion, in good times as well as in bad. And just as we seek by various methods of soil conservation to provide moisture in the dry months and store or transport surplus water in the rainy periods, so also we are under obligation to give continuing attention to measures that will safeguard people during the critical economic seasons in their lives.

There are times in almost every human life, when economic disaster may strike. The breadwinner may lose his job and not find another for months. Or he may become sick and be unable to work. A costly illness may strike some member of his family and cripple him financially for years. Or the breadwinner, himself may lose the use of an arm or a leg and be permanently disabled for gainful employment. Old age may overtake him and render him too feeble to work. Or he may die while he is still young, and leave a widow with small children to bring up. Whether any of these conditions are brought on by drought or flood or war, or just by time and circumstance, they are periods when a family may need financial help.

People who are without protection against these major hazards, are subject not only to the disasters, but to the constant and eroding fear of economic insecurity. They live with fear; it puts its mark on them, the way wind and rain devastate a land stripped of its protective covering of forest or grass. And the destruction spreads, for not only are the people made destitute, but they become burdens on the community as well, and their misfortune must be borne by all.

Her work day done, security should be hers. (Photo, R. J. Nesmith and associate, Josephine Sharkey.)

To wait until these disasters occur before trying to do something about them, is equivalent to waiting until a dust storm blows up before trying to improve the soil. Such lack of foresight not only increases the danger, but makes it more deadly when it strikes.

It was for these reasons that the Social Security Act of 1935 set up a three-fold program to provide some safeguards for the critical economic periods in human lives. Two of the programs, old-age and survivors insurance and unemployment compensation, are social insurance programs. They are based on the principle of spreading the economic risk, for though millions are subject to disaster, relatively few are stricken at any given time. Workers insured under these programs earn credits toward benefits while they are employed, and receive payments if and when the crises occur. The third program, called public assistance, is designed for those who are or have been unable to earn adequate insurance benefits, such as needy old people, the needy blind, and dependent children.

As yet, the benefits of only the public assistance program are available to farm people. Old-age and survivors insurance and unemployment compensation are designed mainly for workers in industry and commerce, and at present farm people generally are not included among the groups who can qualify for benefits.

The public assistance program has proved of great value to farm families and to communities in the drought area. Before the program was established, States and local communities had to rely solely on their own resources in providing aid to those in need. Under the Social Security Act, provision is made for grants-in-aid by the Federal Government to the States. These grants match State funds and the States administer the payments to those who qualify. In December 1936, about a year after the Social Security Act was passed, over $200,000 a month in benefits of this kind were already being paid in the drought area. The Federal grants not only helped the needy aged, needy blind, and dependent children, but left more State funds available for use in general relief.

The social insurance programs have taken longer to get under way than the public assistance

program, since insured workers had to build up credits in order to qualify, but both are functioning widely today.

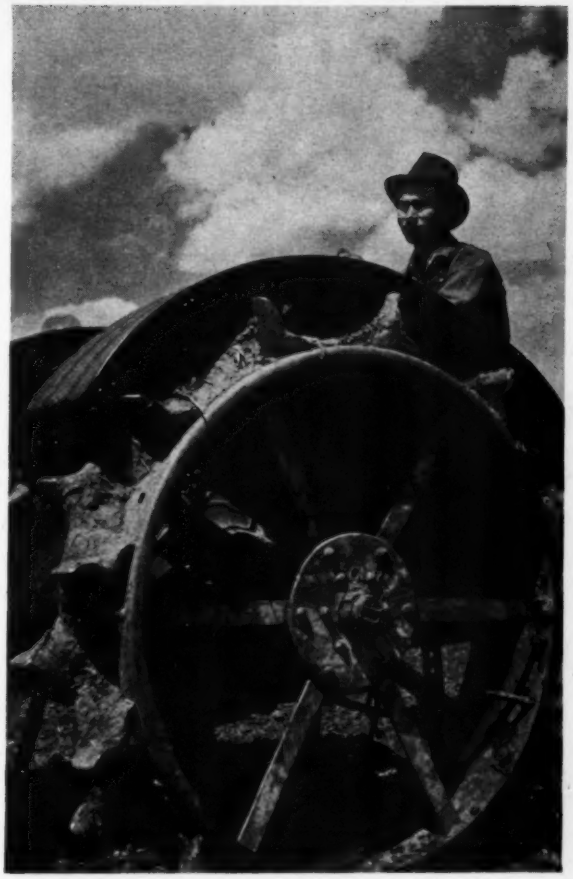
Old-age and survivors insurance is a Federal system, designed to protect wage and salary earners in industry and commerce by providing an income for the breadwinner when he becomes too old to work, and for his family when he dies. To help cover the cost of this protection, the worker at present pays one percent of his wages, and his employer matches that contribution. This money goes into a fund from which benefits are paid to those who qualify.

When a worker who has worked long enough and earned enough in covered jobs to qualify for benefits, reaches the age of 65 or older and retires, he receives monthly payments for the rest of his life. His wife also gets monthly payments when she is 65, and if he has young children they too receive payments until they are 16, or 18 if they remain in school. Should the worker die even before he is 65, his widow and his young children, get monthly payments. If the worker had no young children, and if his widow is less than 65, she will get a lump-sum death payment and monthly payments will start when she is 65, provided she has not remarried. If a worker leaves neither widow or children, then his dependent parents are entitled to get payments if they are over 65.

The unemployment compensation program established under the Social Security Act is State-operated, and is designed to provide regular weekly payments for insured wage earners who temporarily are out of work through no fault of their own. These payments are for limited periods and are limited in amount. Each State has its own unemployment compensation law, and administers its own program, with the Federal Government paying the costs of administration.

These three programs, public assistance, old-age and survivors insurance, and unemployment compensation—were established just a decade ago, in the same year that the Soil Conservation Service was started. It has been a decade of great change and turmoil—of depression and war and now reconversion. Throughout the years, soil security and social security have played steadily greater roles.

War placed severe pressures upon the land and upon the people. Farmers worked the soil to its limits to provide food for our armed services and allies, as well as for our civilian population. This pressure will continue, for the land must continue to feed not only millions of Americans at home, but many starving peoples abroad. The conservation measures established during the past decade



Machines, men and soil can't go on forever. We need replacements for machines, conservation for soil, security for men. (Photo, Farm Security Administration).

have proved of untold value, and in the years ahead they must be continued, if the land is to meet the increasing demands upon it.

During the turbulent ten years since the Social Security Act was passed, millions of people have gained a new sense of security, never before possible. The old-age and survivors insurance program has saved homes, kept children with their mothers, given aged men and women regular income, strengthened the family, and kept children in school. It has given millions an incentive to save for a rainy day. Far from destroying ambition and drive, it has provided a basic minimum on which to build. Today, more than a million persons, including retired workers, their wives and children, and the widows and children of deceased workers, are receiving benefits totaling about $20 million a month.

The unemployment compensation program has likewise contributed to the minimum basic security

It's a tough battle, and it takes tough men and women to win it. Soil security and social security are related objectives. (Photo, Federal Security Agency.)

of many workers during periods of unemployment. In the reconversion period through which we are now passing, millions of war workers who will be temporarily without jobs, will be able to bridge the gap with the help of unemployment compensation. Not only will these benefits serve to keep families going while the breadwinner hunts for a job; the benefits will also help to maintain purchasing power in the community, and this is the life-force of business.

The record of the past ten years has proved that the social security programs are based on good and workable principles. But that does not mean we have reached our goal of basic security for all —any more than the Soil Conservation Service has reached its goal of restoring, revitalizing and conserving all of our land. There is still much to be done—so very, very much.

First of all, not enough people are covered by social insurance. While some 43 million persons earned some wage credits in 1944 under State unemployment compensation laws, only 36 million earned enough to qualify for benefits if they lose their jobs. Some 12 to 15 million workers, including many employed in small firms, farm workers, government employees, workers in non-profit institutions, maritime workers, and domestic employees, are not covered by State unemployment compensation laws.

Coverage under Federal old-age and survivors insurance is not broad enough, either. Some 70 million workers have earned credits counting toward this insurance, but only 40 million have earned enough to acquire insured status. About 20 million workers have no such protection, for they are in "non-covered" employment in which the wages do not count toward benefits. This employment consists chiefly of farm work, domestic service, government work, self-employment, and work for nonprofit organizations.

Farm people constitute one of the largest groups who are not protected. There are probably 5 to 5½ million farm operators and from 3½ to 4½ million paid farm workers in the United States. Like many other workers, they prospered during the war, but in 1940, census figures showed their incomes to be very low. In 1939, nearly half of our farm operators earned less than $600 a year, including the value of the food consumed by the farm family. Two-thirds had an income of less than $1,000. That same year saw 10,567 farm foreclosures, and even in 1943, when farmers were much more prosperous, there were 3,270 foreclosures.

Farm people have need for social insurance protection, just as do workers, in industry and commerce. Furthermore, many farm people work part time in jobs that are covered under the existing programs of social insurance. During these short periods of employment, they pay taxes toward old-age and survivors insurance benefits, yet most of them do not remain on the jobs long enough to build up insured status, and so will never qualify for benefits. To provide protection for farm operators and farm workers in old age, and for their families if the workers should die, the Social Security Board has recommended that old age and survivors insurance be extended to these groups.

The Social Security Board has also recommended that coverage under State unemployment compensation programs be extended to paid farm workers and other wage earners now excluded. Farm owners and operators, being self-employed, would not be included, since it is practically impossible to determine when a self-employed person is actually unemployed.

Providing protection for more people under the existing laws is just one of the improvements, though a major one, that can be made in our system of social security. There are many others. One of the Social Security Board's principal recommendations is that cash benefits be provided to replace partly the wages lost when a worker becomes sick or disabled. Our present system offers protection only against such hazards to earnings as unemployment, old age, and death. Yet sickness and disabling accidents can also cut off earnings. A man who cannot work for two months because he is sick, is often in worse financial position than the man who is laid off for two months. Yet our social insurance system provides unemployment insurance, but no sickness insurance. Similarly, a man who is unable to work because of old age, can get benefits. But if he is crippled permanently and cannot work, he gets no benefits, even though his family is usually harder hit than the family of the man who has become too old to work.

The insurance principle can and should be carried even farther, to cover another great economic hazard, the cost of medical and hospital care. Millions of people go without needed medical care because they do not have the money to pay for it. A single costly operation can throw a family into debt for years. Yet if we are to provide basic security for all our people, the social security program must make it possible for all groups in the population to get whatever medical care they need. This means, too, that hospitals and medical clinics must be built in all regions of the country where existing facilities are inadequate.

Many farmers have learned through cooperative health plans of their own—and through the Farm Security Administration plans—of the great value of prepaying the costs of medical and hospital care through an insurance plan. The Social Security Board believes that more and better medical care would be available if the pre-payment through social insurance of the costs of medical and hospital care covered every person. It recommends that these and other risks be provided for through a national comprehensive system of social insurance with decentralized administration through local offices and representative advisory councils.

The depression years taught us bitter lessons. They taught us that we must conserve our land and our resources and protect them from waste and decay. They taught us that we must protect people too, from economic hazards that they are powerless to avoid. Soil conservation and social security have helped immeasurably to provide these protections.

But the war years just ended taught us even more significant lessons. They revealed to us the tremendous productivity of American industry and labor. They brought to light the amazing genius of modern scientists, culminating in the world-shaking release of atomic energy.

These facts are now part of the record. We know today that we have the material and the energy and the know-how to produce enough so that no man and his family need go hungry or ill-housed or ill-clad. The challenge of the future, which we now face, is to insure the well-being of our people. How successfully it is met depends upon the wisdom with which we use our vast power and resources, to bring lasting peace and security to all. The land and the people and the future will return what we plant now. But we must build safeguards against drought and disaster, so that the harvest will be good.

He Keeps His Farm in Sod

By M. E. Rowley

Fine saddle horses on the Jackson farm. There's still some pasture improvement to be done in this field.

RALPH Jackson was told that he couldn't make a decent living out on the prairie northwest of Pryor, Okla. The land was "no good," it was sand and Jackson was wasting time and money trying to produce anything on the 80-acre farm he bought for $800. That was 1937.

Since that time the skeptics have been silenced, rather thoroughly, by what Jackson has done on the farm in cooperation with the Mayes County Soil Conservation District. Conservation farming now has the income from his dairy cows alone bettering $450 a month.

Jackson knew when he moved to the 80-acre place that he couldn't make a living if he tried to cultivate the crusty prairie soils. He figured, with technicians of the Soil Conservation Service assigned to the Mayes County district, that a pasture-dairy farm ought to make the best use of his acres and return the largest income.

When Jackson bought the place only 16 acres had been broken out and the remainder was poor weed pasture with very little grass left. But today everything is in pasture and pasture crops with the exception of 5 acres in orchard, 5 acres in ponds and one acre in garden. The change in land use from cultivation to pasture was the very heart of the plan for the whole farm which Jackson worked out in cooperation with the soil conservation district.

One 45-acre pasture—sodded with Bermuda and seeded to lespedeza, rye and native grass—Jackson calls it his Big Pasture—carries his 32 dairy cows most of the time. Jackson uses it in combination with a 16-acre supplemental pasture of sweet clover, red top and lespedeza, and with 4 small pastures on which he grows ryegrass, red top and native grasses.

The pasture on the entire place has been growing and improving for eight years. According to Jackson, each year it gets better. "One of the beauties of my pasture program is that the grasses in it can take advantage of any kind of weather. This year has been exceptionally wet, and my lespedeza has really gone to town. The Bermuda is doing all right, too. If the year happened to be dry, the Bermuda would have done a large part of the feeding job which the lespedeza is doing," says Jackson. He points out that his cows produced a little more milk in July and August this year than in May and June. "The pasture just keeps on getting better," he states, and a look at his Big Pasture shows the cows aren't able to keep it eaten down.

Lespedeza likes Jackson's land. His front yard, about one-fourth acre, shows rank growth. Jackson plans to cut it for hay soon.

NOTE.—The author is assistant state conservationist, Soil Conservation Service, Fort Worth, Texas.

Feed bills for his farm were $1,500 last year, Jackson states. That amount, and the pasture he grows on his 80 acres, fed 64 head of livestock, including 32 milk cows, 15 heifers, 5 hogs and 6 horses he is raising for saddle stock. "My cattle have done better—they are in better shape—this year than they have ever been," asserted Jackson.

Last year he milked 12 to 14 cows throughout the year, selling $1,900 worth of milk. His pastures seem fairly stable this year—one month's income is about like the next. Jackson says his milk check has varied upward only a few dollars from an exact $450 since early spring.

Total 1944 income on this farm which the feedbox experts said wouldn't pay was $6,500. Receipts included $1,000 from hogs, $1,000 from cows, $800 from eggs and $200 from chickens. He has a flock of 200 Austrawhite chickens which has produced at least 60 eggs daily all year.

Jackson's two fish ponds, covering five acres, are designed to furnish irrigation water for his orchard, although he has yet to complete the ditches to carry the water to the trees. He expects to do that within the next year or so. Currently he is more than satisfied with the water the ponds furnish his cattle and with the more than 400 pounds of fish produced each year.

His fertilized pastures all drain into the ponds. This in turn fertilizes the ponds so that the fish make good growth. He stocked the ponds in 1939 with bass, perch and channel catfish. He hasn't had to restock. "I've caught 16-pound buffalo and four to five-pound bass out of there," he says. Usually Jackson can't seem to find the time to fish the pond enough to remove the large fish so the small ones have a chance to grow, although he and his neighbors try hard.

His wife proudly shows the last few jars of more than 90 pints of fish which she canned last year. "We have a grand time when we harvest the pond," she says. "The neighbors all come in and we have more fish than we can eat."

The plum orchard on Jackson's place is only average. This year, generally regarded as a poor one for fruit in this section, he has received $36 from sale of plums. In addition, the family ate a quantity of them and Mrs. Jackson canned many more.

Jackson maintains a machine shop where he does his own work and some for his neighbors. He intends to build a separate shed for his machine work this winter, since he needs the space in his garage which his tools now occupy.

The Jackson home, a large, airy place built over a cool basement to which the family retires when summer temperatures rise, is an excellent example of the fruits of conservation farming. It has modern conveniences and contains a number of useful fixtures which Jackson himself designed and built. The farm buildings include a large barn which his neighbors declare is one of the best in the community, a double garage and a chickenhouse.

Jackson's cattle graze the recently-mowed pasture. Mowing controls weed competition with the better grasses.

This fine barn which Jackson designed and helped build is one of the fruits of handling each acre according to its capability. Milking room is in the left wing.

H. B. Roy, work unit conservationist, goes over a problem with Ralph Jackson, a district cooperator.

Jackson doesn't confine himself entirely to his 80-acre place. For the past several years he has been renting 420 acres, 280 of which have been in

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The Fenlands of England

By W. E. Doran

England's fens have played an important part in wartime food production. Thousands of derelict acres have been reclaimed. Here is a typical "duckpond" in which potatoes have replaced marsh.

THE fenlands of East Anglin have played an important part in wartime food production.

In the interval between World Wars I and II some of the fen areas had become derelict, due in part to drainage troubles and in part to the agricultural depression. Today all that is changed and thousands of acres of fen, derelict before the war and covered with scrub, reeds and bushes, or waterlogged because of defective drainage, have been cleared, drained and ploughed up. Hundreds of miles of concrete roads have been laid to give access to areas which formerly could only have been reached over soft peat "droves" impassable for wheeled vehicles in winter and very rough going even in summer. Sugar beet, potatoes, carrots and grain crops are all produced in abundance by the fertile fen soil.

In this great work of wartime food production American tractors and agricultural machinery have played a great part, and have enabled the utmost to be obtained from the land notwithstanding acute shortage of manpower. Great is the gratitude of Britain's agriculture to America, and nowhere greater than in the wide acres of the fens.

Lying inland from the quadrilateral-shaped inlet of the sea known as The Wash on the eastern coast of Britain, bounded on the north by Lincolnshire and the south by Norfolk, lie the fenlands of East Anglia, an area more akin to Holland on the opposite side of the North Sea than to any part of England. Originally marshlands, the fen country, like the Dutch lowlands, has been reclaimed by centuries of determined struggle against nature and now includes some of the most fertile land in Britain.

The Wash is a natural settling basin for great quantities of fine glacial silt deposited there by the action of the tidal currents. In very ancient times the sea penetrated much farther inland than it now does, but over a long period of time the action of the tides built up a low coastal barrier of silt behind which lay a great freshwater marsh in which flourished peat-forming mosses.

Today the greater part of the fen soil is composed of rich black peat.

Here and there in the great marsh were islands of clay protruding above the general level.

NOTE.—The author is chief engineer to Britain's River Great Ouse Catchment Board. (The River Great Ouse is the main river of the English Fen Country, which lies on the southeast coast.)

Such sites, away from the haunts of men, attracted the religious orders, and the abbeys of Ely, Ramsey and Crowland were founded on island sites. Even today the administrative county in which Ely is situated is called the "Isle of Ely" although it ceased to be an island many centuries ago.

The earliest attempts at drainage were carried out on a limited scale by the monks but it was not until the third decade of the seventeenth century that a comprehensive drainage scheme was attempted. At that time the wealthy and influential Francis, fourth Earl of Bedford, was persuaded to undertake the task. Together with thirteen other participants, he undertook to drain the fens in

Flood waters in the English fen country (Labenheath Lode) held by a precarious line of bags. Spillwater can be seen behind the bank.

consideration of a grant of 90,000 acres of the reclaimed land.

To direct the project he engaged the services of a Dutch engineer, Sir Cornelius Vermuyden, who had already carried out considerable drainage works elsewhere in Britain. Vermuyden set about the task with energy and skill, but difficulties of all kinds beset the work from the outset, including the civil war between Royalist and Roundhead, during which the work was suspended.

More than 20 years elapsed before the works were declared completed. During this period a vast work of drainage had been accomplished in spite of every difficulty and in the teeth of violent opposition from the unruly fenmen. Great new drains had been made and the meandering fen rivers had been confined between flood banks while new straight cuts had been executed where necessary. In the case of the main River Ouse, for example, the old course from Earith to Denver, which swung in a great arc eastwards, had been shortened by 12 miles by the construction of two parallel channels 21 miles in length.

Although three hundred years have passed since they were planned and executed, Vermuyden's work remain today very much as he planned them. Even with modern excavating machinery and the modern engineer's knowledge of hydraulics, these works would have been no small undertaking as a government scheme, but when one considers that nearly half a million acres of land were drained entirely by private enterprise under every kind of difficulty, both financial and political, and without the help of even the simplest machinery, one must marvel at the courage, tenacity and skill which brought the great work to a successful conclusion.

Further difficulties became apparent almost as soon as the work was considered to be finished. The drainage of the spongy peat soil caused the surface of the fens to sink—a process which has continued to the present day. Before long the time came when the water could no longer drain away by gravity and windmills were employed to lift it into the main watercourses.

The introduction of the windmill marked the beginning of the separation of fenland drainage into high level and low level systems. Originally the general level of the fenlands was about 5 feet above that of the coastal silt belt; today the fens average about mean sea level or 10 feet below the level of the coastal silt land.

The lowering of the peat surface, which of course the original drainers had not foreseen, is the basic cause of present day difficulties with fen drainage. The fens rapidly became a depressed basin between the high land up-country on the one hand, and the coastal silt belt on the other. This basin, some 1300 square miles in extent receives the drainage from an area of higher land some four times greater, and through it have to pass the highland waters on their way to the sea. The highland rivers are carried through the fens in embanked channels, the normal level of the rivers being 6 feet or more above the level of the fens. Drainage of the fens themselves is done by pumping stations. The largest of these—which is in fact one of the world's largest, having a capacity of 3000 tons of water per minute—was completed in 1934 to drain the Middle Level fen extending over some 180,000 acres. The old windmills have long since ceased to function although one or two examples still survive. Windmills were replaced by steam engines and paddle wheels about a century ago, and these in turn were replaced by diesel engines driving centrifugal pumps. Nevertheless, in the heavy floods of 1937 and 1939, some of the old steam engines were again in action, and one built in 1831 had 165 running hours to its credit in the floods of 1937.

When heavy winter rains swell the upland rivers the water, pouring into the flat fen country, rises against the flood banks and the fenmen get ready to fight the floods.

In times past banks have given way or have been overtopped, and thousands of acres of fertile farm land have disappeared, for a time, beneath the waters. In 1937, and again in 1939, the floods rose above the level of the tops of the levees for many a mile and were only prevented from spilling over by a precarious wall of bags filled with peat feverishly built against the rising water by men working day and night without pause.

Bank failures have occurred by water seeping through and carrying away the toe of the bank. In other cases the bank top has been washed away.

The Land Drainage Act of 1930 marks an important point in the history of the fens. Under this Act river authorities called Catchment Boards were set up by the Government to control the principal rivers of England, and to enable the necessary improvement works to be done. Government grants, amounting in certain cases to as much as 75 percent of the cost of the works, were made available.

The Board principally concerned with the fen river system is the River Great Ouse Catchment Board which has under its jurisdiction an area of

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This Landlord-Tenant Contract Works for Conservation

By Gordon Webb

FIVE years ago the Southern Piedmont Conservation Experiment Station at Watkinsville, Ga., set up a 100-acre farm to test the practical application of experimental findings. The farm is doing that. But something else of value to other landowners and tenants has come from this farm. It's a long-term contract that has made money for both landlord and tenant, and has been good for the land.

In this case, a government agency is the landlord. Raymond Dawson is the tenant. But substitute any Southern landowner for the station as landlord and any other hard-working fellow for Dawson as operator, and this five-year agreement with a few changes should work well almost anywhere else.

Raymond Dawson finds the stalks tall and the ears heavy.

NOTE.—The author is head, current information section, regional division of information, Southeastern Region, Soil Conservation Service, Spartanburg, S. C. The Southern Piedmont Conservation Experiment Station is a cooperative soil and water conservation experiment station, conducted jointly by the Soil Conservation Service and the Georgia Agricultural Experiment Station.

These dairy cattle grazing lespedeza sericea are jointly owned by farmer and landlord. Costs and sales are divided fifty-fifty.

This contract provides for full protection, improvement, and wise use of all the land on the farm. That's essential because both owner and operator must look to the land for the crops and products that give each an income. It lets the operator share in the long-time benefits of soil conservation. It encourages diversification. It enables the tenant to use his labor the year-around on the farm, and to have year-around income. It has given the owner a reasonably high year-after-year return on his investment.

The station has received from 4.7 to 9.6 percent interest a year on its investment of about $5,900 in land, buildings, livestock, and equipment. Dawson has netted almost $100 a month, with a lot of plusses in the form of milk, butter, eggs, fruits, vegetables, 800 pounds of liveweight pork a year, fuel-wood, and a good house in which to live.

And the land grows more cotton, corn, wheat, and oats to the acre. There's more hay. The pastures are better. As B. H. Hendrickson, project supervisor, puts it, "Even the weeds grow a lot better."

These and other benefits for owner and operator become apparent as we talk to Hendrickson, to John R. Carreker, who looks after the 100-acre farm, and to Dawson himself.

"The most important conservation facts have been developed on small experimental run-off plots," Hendrickson concedes. "But some of the practices might not be so good on fields, or maybe won't work out well in field practice. We need typical Southern Piedmont test farms to help us eliminate the 'bugs' in practical application of methods developed by research.

"You will notice that this farm began to make progress when the three fundamental needs were supplied. The run-off water was controlled, the soil loss practically stopped, and the fertility gradually increased, on a pay-as-you-go plan."

The hundred acres were chosen for a two-mule, one-man, cotton, corn, small grain, lespedeza, and livestock farm—a proving ground for land use practices.

About that time Raymond Dawson was moving from the nearby farm he had been renting. That farm was being sold. Dawson wanted to stay in the same community, and he decided to rent the experiment station farm unit. A five-year contract was entered into by him and the experiment station.

Now that the contract is nearing its end, station officials and Dawson alike agree that it has worked well for both parties concerned.

This contract, which does not constitute a partnership, goes beyond the production of the usual field crops of cotton, corn, hay, and small grain. It provides for livestock production with landlord and tenant equal owners of livestock and poultry. There can be no argument about "which calf is mine and which is yours." Every animal and every chicken is owned fifty-fifty.

Beef cattle were bought initially by Dawson and the Station. But when the University of Georgia began purchasing ungraded milk for manufacturing last year, the beef cattle were sold and dairy cattle substituted.

Dawson takes care of the livestock and poultry. All costs and all cash from sales are divided equally. All of the feed is grown on the farm except mash for the poultry.

The livestock enterprise is important for several reasons. The South needs more livestock to balance its agriculture, and this is especially true of tenant-operated farms. Livestock fits into soil conservation farming. With livestock, a farmer can market the grasses and hays from improved pastures and meadows planted for erosion control and good land use, as well as the small grain and annual hays grown in the soil conservation crop rotation. Livestock, particularly dairy cattle, helps to provide year-around use of farm labor, and brings in year-around income.

Last year total sales from the farm amounted to $3,007. Livestock and poultry produced 51 cents of every dollar of sales, cotton 40 cents, and other crops 9 cents. Total costs of farm production were $1,481.

This year, with a dairy herd, livestock products probably will account for a larger part of each dollar of sales. Gross income from the 6-cow dairy herd has been averaging $31 to $32 a week.

On July 1, the farm already had made a $500 profit from 1945 operations. Chickens, eggs, milk, and 113 bushels of wheat made this possible. At that time, crops were about ready to lay by, and there would be few other expenses for crop production. The income from cotton and six more months of milk, eggs, and chickens was still ahead. That's what diversification, soil conservation, and a good landlord-tenant contract mean on this 100-acre farm.

Income from crops also is divided equally, but not all costs of crop production are. Some special arrangements have been made that would not apply on privately owned farms. For example, there's the $382 cost of commercial fertilizer for last year's crops. Hendrickson said that ordinarily this cost would have been split equally between

John R. Carreker, left, of the experiment station, talks over cotton prospects with Raymond Dawson, farm operator.

Crotalaria volunteers after the corn is laid by. Billy, 14 year old of the Dawson household, shows how much the crotalaria had grown by mid-August.

tenant and landlord, but that the government agreed to pay the whole bill in exchange for the detailed records Dawson was asked to keep for the experiment station. The station also paid for insecticides.

Shorn of legal terms, the other parts of the contract are these:

Dawson agreed to live on the farm and to operate it in strict compliance with the soil conservation cropping plan given him by the landlord. This cropping plan provides for: 1. the growing of seed for all major crops to be produced, 2. the growing of all feed possible for livestock and poultry, and 3. the growing of crops for sale. The station built the terraces, but the tenant maintains them. (We'll have more to say about the soil conservation plan, including crop rotations, later.)

Two mules, a wagon, horse-drawn farm equipment and hand tools needed for plowing, planting, cultivating, and harvesting crops and for general upkeep of the farm are provided by the station. Veterinary fees and cost of medicines for the mules are paid by landlord. Repair parts and skilled labor when required for repairing equipment also are supplied by the owner. Dawson keeps in good repair the equipment, roads, trails, buildings, fences, gates, terraces, and other structures.

The station supplies the materials and the skilled labor for repairing buildings, and for new buildings. If a carpenter is needed, the landlord pays him. But Dawson works with the carpenter. Most of the lumber used in repairs, comes from the farm woodland. Dawson cuts the logs, hauls them to the sawmill, and hauls the lumber back to the farm. Sawmill expenses are paid by the owner, and when new fences are built he supplies one-half of the labor and Dawson the other half.

Dawson also furnishes labor for brushing off, plowing, seeding, fertilizing, and mowing needed to make new pastures or to improve old ones.

He agrees to protect woodlands from grazing, and all land from fire. The woodland management plan is followed in cutting trees for fuelwood.

Any special seed or plants not available or not grown on the farm are supplied by the owner, except for the garden. Dawson also buys the fertilizer used in the garden.

If equipment not on the farm is needed, the custom rate charged for the use of this machinery, is equally divided. A tractor and a combine, for example, are hired to harvest small grain and legume seed crops.

Carreker outlined the soil conservation farming plan. It is similar to plans farmers throughout the South are making with help from their soil con-

servation districts. Each field is used for the crops it will grow best, whether these crops are cotton, corn, small grain, sericea lespedeza, kudzu, trees, or grasses and clovers.

On the 8.2 acres of Class I land corn is grown each year with volunteer crotalaria for soil building. Class I land is the best we have.

On the 18.6 acres of Class II land, which needs moderate use of soil conservation practices, a two-year rotation is used. Oats grain overseeded with Kobe lespedeza is followed by cotton or corn.

On the 22.4 acres of Class III land, which needs intensive soil conservation practices, a three-year rotation is used. Wheat and lespedeza are grown two years, and cotton the third year.

The land in Classes I, II and III is terraced and farmed on the contour.

"These rotations have several advantages," Carreker explains. "Each year of row crops follows a summer legume residue. This permits land preparation in the winter. Corn and oats are concentrated on the best land where they yield the most. Cotton and wheat which give relatively better yields on less fertile land are on Class III areas. Small grain can be planted between the rows of cotton and corn in September, thus getting the grain in early enough for winter grazing. The rotations are easy to remember. You might say we have a one-year rotation on Class I land, a two-year rotation on Class II land, and a three-year rotation on Class III land."

The same amounts of fertilizers are used on the same crops on all land classes: 300 pounds of 6–8–6 in the row and 150 pounds of nitrate of soda side dressed on the corn; 500 pounds of 6–8–6 and 100 pounds of nitrate of soda dressed on the cotton; 400 pounds of 4–10–6 and 100 pounds of nitrate of soda on oats and on wheat.

The 19.9 acres of Class IV land should be used only occasionally for row crops. This land is planted to kudzu and sericea lespedeza for hay and grazing.

We found Dawson, his wife, and Billy, their 14-year-old son, dressing fryers and culled hens which were sold to an Athens store for $43.35. Dawson likes the soil conservation farming plan and the rental contract. His wife likes the house, with running water, and the variety of home grown foods the farm provides.

Would Dawson want to renew the contract for another five years?

"I'd like to renew it," he replies. "But I'll need more land. This 14-year-old boy is helping me more all the time, and in a few years the 9-year-old twin boys will be working. I'll have more labor."

THE FENLANDS OF ENGLAND

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3,200 square miles. Under its direction and that of its predecessor, the Ouse Drainage Board, an amount of about $2,580,000 has been approved for the improvement of the fenland rivers since 1927, apart from the very large sums expended on pumping stations and internal drainage systems by local drainage boards, during the years 1921-1944, while shortly after the outbreak of World War II, the Board approved a flood protection project estimated to cost $8,800,000 for the elimination of the fenflood danger; work which it is hoped will be embarked upon as soon as possible after the war.

Works such as these are carried out as grant-aided schemes under the Ministry of Agriculture and Fisheries. The work done so far has consisted mainly in raising and strengthening the existing flood banks with clay. The stage has now been reached where further heightening of the levees is no longer practicable and the flood protection project just mentioned includes the cutting of a new flood relief channel, 9 miles long, and with a bed width of 150 feet, which will reduce flood levels to below the safety line. The continual raising of the fen river levees has been necessitated mainly by the steady lowering of the surface of the peat fens. This sinking is a complex phenomenon due part'y to the consolidation of the peat by improved drainage and pumping, partly to the dissolution of the peat by bacterial action, and to a great extent to aerial erosion. During the high winds of early spring great "blows" sometimes occur when the light peat soil, rendered powdery and friable by agricultural operations, blows away in great clouds. Drains are filled up in a few hours and many a farmer has seen three successive sowings disappear before the wind in a bad season. This problem, only too familiar in the American "dust bowl," is now being studied in the fens.

KEEPS FARM IN SOD

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cultivation. He keeps separate accounts on his own land and that which he rents. "I'm cutting down," he says. "I have about 350 acres too many. I plan to get all my land and the land I rent into year-round pasture; to get away from cultivated crops and to grow legumes and ryegrass. I can put lespedeza up for hay, cut my feed bills, and work less with an all-pasture program. Cultivating a farm here doesn't pay me."

Long-Time Planning Of One Soil Conservation District

THE Broad River Soil Conservation District, including eight Georgia counties in the Piedmont hill section, found among other things that much land which was being farmed there was not suitable for cropping. It also found 150,000 acres of idle land in the district. Some of this idle land was suitable for crops; most of the rest was good for pasture, meadow, or woodland. The district's program now calls for changes in the use of this misfit and idle land. Here are some of the land use changes the supervisors of the Broad River District plan to make:

Cultivated land at time of planning	473,502 acres	
Recommended for continued cultivation	369,333 acres	
To be taken out of cultivation	104,169 acres	
Recommended for kudzu and lespedeza sericea	47,350 acres	
Recommended for permanent pasture	52,085	"
Recommended for woodland	2,367	"
Recommended for wildlife areas.	2,367	"
	104,169	"
Idle land at time of planning	150,000 acres	
Recommended for cultivation	30,000 acres	
Recommended for kudzu and lespedeza sericea	67,500	"
Recommended for permanent pasture	24,000	"
Recommended for woodland	24,000	"
Recommended for wildlife areas	4,500	"
	150,000	"

When these changes have been made, there will be 75,000 acres less cultivated land in the Broad River District, but the district will have 217,000 acres more pasture, woodland, and meadow. The land left in crops will be the best land and with conservation farming it will produce more per acre. This will be partly because it is the best land, and partly because it is used properly, and more often rainfall is conserved.

The Broad River District had completed plans on 1,633 farms by April 1944. These farms made up about 19 percent of the total land area of the district. The figures below show some of the changes in land use that are being made on these 1,633 farms.

	Before Planning (Acres)	*After Planning* (Acres)	*Change* (Acres)
Cultivated land	99,920	91,557	8,343 less
Permanent Hay	1,074	18,381	17,307 more
Pasture or Range	19,167	32,039	12,872 more
Woodland	61,206	68,262	7,056 more
Idle Land	17,548	0	17,548 less

These farms are reducing the area of cultivated land by 8,000 acres. But they are gaining 37,000 acres of permanent hay, pasture, and woodland. Every acre of idle land has been put to work. These are the kinds of land use changes that are being made in soil conservation districts throughout the country. They are changes that eliminate misfits and put the land to those uses for which it is suited.

The supervisors of the Broad River District have also determined through their planning what equipment, materials, and labor are needed to do the District job. Here are their figures for four big conservation work jobs.

The Job	*Size of the Job*	*Needed:*
Terracing	360,000 acres	360,000 horse hours 972,000 motor hours 3,132,000 man hours
Pasture Improvement	228,000 acres	4,962,000 horse hours 3,360,000 man hours 6,740,000 lbs. of seed 228,000 tons of lime 57,000 tons of super-phosphate
Stock Water and Fish Ponds	1,200 ponds	30,000 horse hours 30,000 tractor hours 180,000 man hours 60,000 ft. of pipe 1,600,000 fish
Farm Drainage	8,000 acres	80,000 horse hours 8,000 tractor hours 412,000 man hours 1,680,000 ft.of tile 16,000 cu. yds. of concrete

Farmers in 1,300 odd districts throughout the country—like those in Broad River—are going ahead with their day-to-day task of conserving the soil, but they are not fooled as to the size of the conservation program. They know there is a lot of work to do, but a highly encouraging thing is that this does not scare them. On the contrary, the challenge to save the soil or perish, plus the fact that they now know how, spurs them to action.

REFERENCE LIST ☆☆

Compiled by William L. Robey, Printing & Distribution Unit

SCS personnel should submit requests on Form SCS-37 in accordance with the instructions on the reverse side of the form. Others should address the office of issue.

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[1] From the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

CHRISTMAS TREES PAY OFF

When Andrew Abraczinskas [illegible] see front cover—started growing Christmas trees on his 900-acre farm near Catawissa in Columbia County, Pa., he didn't realize that this new "side line" of his would soon become his principal crop. Today he harvests thousands of Christmas trees every year. He sells them mostly on a wholesale basis and his buyers come and get the trees and beg for more; he doesn't have to worry about getting his crop to market.

Abraczinskas grows his trees on land that cost an average of less than $10 per acre, and he can begin to harvest a planting within 6 to 8 years. Planting is begun by using a subsoiler dragged along the contour by a tractor; the trees are then set by hand, using no tools, and the loose earth is tamped down by stamping with the feet. This means that unskilled labor can be used to plant as many as 1,500 trees a day.

Christmas trees are a ten million dollar a year business and Christmas tree farming is becoming more and more popular every year. The trees grow well on land that is often not suitable for the usual agricultural crops, and they protect rough, worn or steep land from erosion.

☆ U. S. GOVERNMENT PRINTING OFFICE: 1945—[illegible]